NATIONAL ENRICHMENT FACILITY

10 CFR 30.6
10 CFR 40.5
10 CFR 70.5

December 10, 2004

NEF#04-052

ATTN: Document Control Desk
Director
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Louisiana Energy Services, L. P.
National Enrichment Facility
NRC Docket No. 70-3103

Subject: Response to NRC Request for Additional Information Regarding Decommissioning Funding Plan

References:

1. Letter NEF#03-003 dated December 12, 2003, from E. J. Ferland (Louisiana Energy Services, L. P.) to Directors, Office of Nuclear Material Safety and Safeguards and the Division of Facilities and Security (NRC) regarding "Applications for a Material License Under 10 CFR 70, Domestic licensing of special nuclear material, 10 CFR 40, Domestic licensing of source material, and 10 CFR 30, Rules of general applicability to domestic licensing of byproduct material, and for a Facility Clearance Under 10 CFR 95, Facility security clearance and safeguarding of national security information and restricted data"

2. Letter NEF#04-002 dated February 27, 2004, from R. M. Krich (Louisiana Energy Services, L. P.) to Director, Office of Nuclear Material Safety and Safeguards (NRC) regarding "Revision 1 to Applications for a Material License Under 10 CFR 70, "Domestic licensing of special nuclear material," 10 CFR 40, "Domestic licensing of source material," and 10 CFR 30, "Rules of general applicability to domestic licensing of byproduct material"

3. Letter NEF#04-029 dated July 30, 2004, from R. M. Krich (Louisiana Energy Services, L. P.) to Director, Office of Nuclear Material Safety and Safeguards (NRC) regarding "Revision to Applications for a Material License Under 10 CFR 70, "Domestic licensing of special nuclear material," 10 CFR 40, "Domestic licensing of source material," and 10 CFR 30, "Rules of general applicability to domestic licensing of byproduct material"

NMSS01

One Sun Plaza 100 Sun Lane NE, Suite 204 Albuquerque, NM 87109 [P] 505 944 0194 [F] 505 944 0198

4. Letter NEF#04-037 dated September 30, 2004, from R. M. Krich (Louisiana Energy Services, L. P.) to Director, Office of Nuclear Material Safety and Safeguards (NRC) regarding "Revision to Applications for a Material License Under 10 CFR 70, "Domestic licensing of special nuclear material," 10 CFR 40, "Domestic licensing of source material," and 10 CFR 30, "Rules of general applicability to domestic licensing of byproduct material"

5. Letter dated October 20, 2004, from T. C. Johnson (NRC) to R. Krich (Louisiana Energy Services) regarding "Louisiana Energy Services - Request for Additional Information on Decommissioning Funding Plan"

By letter dated December 12, 2003 (Reference 1), E. J. Ferland of Louisiana Energy Services (LES), L. P., submitted to the NRC applications for the licenses necessary to authorize construction and operation of a gas centrifuge uranium enrichment facility. Revision 1 to these applications was submitted to the NRC by letter dated February 27, 2004 (Reference 2). Subsequent revisions (i.e., revision 2 and revision 3) to these applications were submitted to the NRC by letters dated July 30, 2004 (Reference 3) and September 30, 2004 (Reference 4), respectively.

By letter dated October 20, 2004 (Reference 5), the NRC provided the technical review of decommissioning funding plan information included in Revision 2 of the Safety Analysis Report, dated July 30, 2004, and requested additional information and clarification be provided within 30 days (i.e., by November 19, 2004). In a November 18, 2004, telephone call between LES and NRC representatives, it was agreed that the LES responses to the NRC Request for Additional Information (RAI) would be delayed past the November 19, 2004, due date. In a subsequent discussion with T. Johnson (NRC), a submittal date of December 10, 2004 was committed to. This letter transmits the LES responses to the requested additional information and clarifications included in the Reference 5 letter, with the exception of the RAIs related to the cost to disposition depleted uranium hexafluoride. The requested information on the cost to disposition depleted uranium hexafluoride will be forthcoming. Some of the decommissioning funding plan information is classified information (i.e., confidential national security information (CNSI)). Therefore, updated information associated with the classified portion of the decommissioning funding plan, resulting from the LES responses to the RAIs, has been separated from the rest of the unclassified decommissioning funding plan information and is being submitted separately in accordance with 10 CFR 95.39, "External transmission of documents and materials."

Attachment 1 to this letter provides the RAIs and the associated LES response. Attachment 2 to this letter provides unclassified information, in the form of updated License Application pages that reflect the LES response to the RAIs. The unclassified updated pages will be formally incorporated into the License Application in a future revision.

If you have any questions or need additional information, please contact me at 630-657-2813.

Respectfully,

Daniel D. Shum for

R. M. Krich
Vice President – Licensing, Safety, and Nuclear Engineering

Attachments:

1. LES response to October 20, 2004, Request for Additional Information
2. Updated License Application Pages

cc: T.C. Johnson, NRC Project Manager

ATTACHMENT 1

Louisiana Energy Services
Response to October 20, 2004
Request for Additional Information

Louisiana Energy Services
Requests for Additional Information on
Decommissioning Funding Plan, Revision 2

1. **Tables 10.1 through 10.3**

Provide additional detail in the tables to justify the proposed decommissioning cost estimates.

Under 10 CFR 70.25, an applicant for a uranium enrichment facility is required to prepare a decommissioning funding plan. The decommissioning funding plan includes a site-specific cost estimate for decommissioning and a financial assurance mechanism ensuring that funds will be available to decommission the facility. Guidance on preparing decommissioning cost estimates is provided in NUREG-1757, Volume 3, "Consolidated NMSS Decommissioning Guidance." Section 4.1 of NUREG-1757, Volume 3, states that a cost estimate for decommissioning would be judged acceptable if it meets nine specific criteria, including:

1. Criterion 2: The cost estimate is based on documented and reasonable assumptions,

2. Criterion 3: The unit cost factors used in the cost estimate are reasonable and consistent with NRC cost estimation reference documents, and

3. Criterion 5: The cost estimate applies a contingency factor of at least 25 percent to the sum of all estimated costs.

In preparing the decommissioning cost estimate, Louisiana Energy Services (LES) modified the tables in NUREG-1757, Appendix A to reflect that their costs were derived from recent Urenco decommissioning experience. It appears LES used an activity based methodology to estimate costs at a less detailed level than the Appendix A tables use. This activity based approach does not provide sufficient detail to allow independent verification of criterion 2 and 3 (described above). Put another way, although LES may use a reasonable basis for their cost estimate (i.e., past decommissioning experience), they have not provided the detail necessary to verify that their cost estimate meets the guidance criteria. Generally speaking, additional labor detail, more information on the decontamination methods (which have not been specified) and the total area/volume of the component to be cleaned, and the specific unit costs for waste packaging, shipping, and disposal costs are needed to determine if LES's cost estimate is adequate.

a. Additional Labor Detail: Labor hours by category were not estimated for planning and preparation, restoration of contaminated areas of facility grounds, or the final radiation survey. In addition, labor detail for the project management and HP&S/Chem labor categories were not broken out by component. Without this detail, the total labor costs cannot be calculated, and thus, the impact on the cost of using a third party contractor to conduct decommissioning also cannot be calculated. That is, it is impossible to calculate the magnitude of adding contractor overhead and profit.

b. Decontamination or dismantling of radioactive facility components: LES has not specified decontamination methods. Instead, LES notes that "Urenco plant experience in Europe has demonstrated that conventional decontamination techniques are effective for all plant items." However, without additional detail on the decontamination methods, we cannot verify if appropriate unit costs and labor rates were used, if all potential contaminated areas and equipment were included, if the costs include cleaning

materials, and if disposal of these materials were included. Further, while tables 10.1-1(a)-(f) sometimes provide information on the total dimensions of each type of component, this information is also frequently missing. Total dimensions are multiplied by unit costs of the decontamination method to determine the total decontamination costs. Total dimensions should be provided for all facility components expected to be contaminated (in some cases this information may be classified).

c. Packaging and shipping of radioactive wastes: Because packaging and shipping costs were included in the waste disposal costs, we cannot verify that adequate labor, containers, and transport rates were used, that an adequate number of containers were used, or that differences in shipping distance do not matter. This information should be provided for both the tails disposition costs as well as the disposal costs for wastes generated during decommissioning.

LES Response

1.a The attached revised Safety Analysis Report (SAR) Table 10.1-2, "Planning and Preparation," Table 10.1-5, "Final Radiation Survey," Table 10.1-7, "Total Work Days by Labor Category," and Table 10.1-9, "Total Labor Cost by Major Decommissioning Task," provide the requested additional labor detail for the "planning and preparation" and "final radiation survey" cost estimates, respectively. The estimated man-hours provided have been proportioned based on the experience-based estimate that forms the basis for the original estimated activity costs and durations for these activities. Most costs are reflected under the Project Management labor cost column. These costs include managerial, engineer, technical writing and administrative support costs. Additional labor details for Health Physics and Safety/Chemistry (HP&S/Chem) technicians and laborers (or multi-task workers) are appropriately shown for the site characterization activity and for activities for the final radiation survey work.

The attached SAR Table 10.1-3, "Decontamination or Dismantling of Radioactive Components," is also revised to show the detailed man-hours for the Project Management and HP&S/Chem labor categories.

The costs associated with the "restoration of contaminated areas of facility grounds" are activity-based and described below in the LES response to Request for Additional Information (RAI) 7.

The attached revised SAR pages will be formally incorporated into SAR Chapter 10, "Decommissioning," in a future revision.

1.b The decommissioning cost estimate for the NEF is based on the Urenco decommissioning cost estimate methodology. For unclassified decommissioning work (i.e., other buildings), the methodology involves producing a "bottom-up" cost estimate consisting of an inventory of all contaminated or potentially contaminated equipment. The type of equipment includes fume cupboards, benches, tanks, pipework, etc. Based

on the inventory, a cost estimate is produced which covers the following direct and indirect costs:

- The monitoring of the building and equipment for areas of surface contamination.
- Cleaning small areas of contamination with citric acid swabs.
- Removal of benches, fume cupboards, sinks, pipework, etc., from building to a staging area.
- Segregation into contaminated and non-contaminated equipment.
- Transporting drums of contaminated materials to an on-site decontamination facility if those items are deemed capable of being decontaminated.
- Cutting-up or dismantling of contaminated items for disposal in drums.
- Transporting drums of contaminated materials to a licensed disposal site.
- Scraping floor in badly contaminated areas and packing contaminated floor materials into drums for transportation to a licensed disposal site.
- Project Management, Technical Services and Supervision costs.
- Radiological monitoring and Chemical Services costs.
- Disposal of contaminated equipment to a licensed disposal facility including burial costs.

This cost estimate methodology has been successfully utilized by Urenco at the Capenhurst, U.K. site for the last 10 years, where a significant number of unclassified buildings have been decommissioned within budget and schedule.

The standard decontamination methodology to be used during NEF decommissioning employs conventional decontamination techniques and is as follows.

The buildings and components are characterized with respect to radioactive contamination immediately prior to the start of decommissioning.

The non-contaminated components are removed, monitored again and free released for disposal offsite. The experience from decommissioning experience in Europe is that all non uranium handling components (e.g. electrical cabinets, cable runs, utility pipe work, etc.) will be free of any contamination. The contaminated components in buildings other than the Separations Modules (i.e., Other Buildings) are initially washed down to remove any contamination. The cleaned components are re-monitored and, if found to be clear of contamination, are also free released for disposal offsite. If any component after cleaning and monitoring still shows contamination, then that component will be reviewed and sorted for decontamination feasibility.

For the Separations Modules, a section of pipe work is decontaminated in situ by circulating citric acid followed by wash water around the pipes, using special portable decontaminating equipment. This pipe work will then be taken down, transferred to the decontamination facility, volume reduced, drummed and made ready for dispatch to a licensed disposal facility.

The remainder of the Separations Modules is dismantled into sections suitable for transport to the decommissioning facility. Specifically, the dismantling will strip the plant down to individual centrifuge machine level.

In the decontamination facility, the dismantled sections will be dismantled further (i.e., sub-dismantled). The sub-dismantled components will be subject to a decontamination feasibility review.

The decontamination feasibility review will check that the item is open to the free flow of decontaminating and cleaning fluids and will allow monitoring of the component after decontamination. Components failing the feasibility review will be consigned to volume reduction, drumming and preparation for shipment to a licensed disposal facility. An example of a component failing decontamination feasibility review would be a long thin tube for which there would be no practical way of either passing decontamination fluids through it in a bath, or of monitoring the internal surfaces after the decontamination process.

Components designated for decontamination will be inspected to determine if any oil or loose bulk contamination are present. In the event of the presence of oil, the components will be degreased in an agitated hot water bath. In the event of the presence of loose bulk contamination, the bulk contamination will be removed within a fume hood, by the use of hand tools, wire brushes, etc. When the item is determined to be free of oil and loose bulk contamination, it is processed through a series of heated and agitated citric acid decontamination baths and wash water baths. For classified components that pass the decontamination feasibility review, decontamination involves use of the citric acid decontamination and wash water baths. For other buildings components, typically only components in the categories "Ventilation/Ductwork" and "Equipment/Materials," these are decontaminated using the citric acid decontamination and wash water baths. Following final drying and radiation monitoring, the item is available for drumming and preparation for disposal at a licensed disposal facility.

The details of anticipated usage of degreaser water, citric acid solution, and wash water used for decontamination are considered to be classified information and are being provided in a separate submittal

Decommissioning cost estimate information associated with decontamination and dismantling of radioactive components was extracted from the detailed "bottom-up" decommissioning cost estimate and converted, to the extent practicable, to the format of the tables provided in Appendix A of NUREG-1757, Volume 3. For the Other Buildings, which account for less than 3% of the total decommissioning costs, the additional decommissioning cost estimate information associated with decontamination and dismantling of radioactive components is provided in existing SAR Tables 10.1-1B

through 10.1-1F and Table 10.1-10. These tables provide the following information.

- The Technical Services Building (including the total area). This building houses various unclassified facilities such as a vent room, environmental laboratory, etc.
- The equipment within the above buildings including quantity and sizes when specified, i.e., sinks, laboratory benches, fume hoods, pipework, etc.
- Gaseous Effluent Vent System, Blending and Sampling, and Test and Post Mortem Facility.
- Decommissioning of the dismantling/decontamination facility.
- The disposal volume for contaminated waste including the transportation costs.

In response to NRC RAI 1.a, the working hours for Craftsman, Supervision, Project Management and HP&S/Chem labor categories associated with decontamination and dismantling of radioactive components have been provided in the attached revised SAR Table 10.1-3. Using the information in existing SAR Tables 10.1-1B through 10.1-1F, the worker unit cost schedule information in existing SAR Table 10.1-8, and attached revised SAR Table 10.1-3, the unit cost associated with decontamination and dismantling can be derived, to the extent practicable, on a "per component" or "per unit length" basis, as applicable.

For the classified components, the response to NRC RAI 1.b is classified and is provided in a separate submittal.

1.c In Table 10.1-10, "Packaging, Shipping, and Disposal of Radioactive Wastes," the unit cost for waste disposal ranges from $\$100/ft^3$ to $\$150/ft^3$. These unit costs include packaging, shipping and disposal of bulk Class A low-level radioactive waste at the Envirocare facility in Utah. The unit cost of $\$100/ft^3$ was used for bulk (large volume) waste product disposal where the large volume results in a lower rate (e.g., the aluminum disposal volume). Otherwise, the unit cost of $\$150/ft^3$ was conservatively applied for the smaller volume miscellaneous wastes. Early project discussions with Envirocare relative to the expected waste streams indicated that use of a disposal cost of $\$75/ft^3$ was appropriate. Envirocare also recommended using a $2.00/mile transportation cost. For the unit cost of $\$100/ft^3$ and similarly for the $\$150/ft^3$ unit cost, $\$25/ft^3$ adequately accounts for the associated packaging and transportation costs from the NEF site to the Envirocare facility in Utah.

The shipping costs associated with depleted uranium byproduct disposition are included in the estimates provided in the Introduction. The packaging costs, i.e., filling the certified cylinders with depleted uranium hexafluoride and filling the disposal drums with depleted uranium oxide, are part of the enrichment and deconversion processes, respectively, and are therefore considered as part of the operating costs of these facilities.

2. **Section 10.1.3.2, p. 10.1-2 and Section 10.3, pp. 10.3-1 through 10.3-3**

Either revise or justify why the cost estimate for depleted uranium conversion is sufficient assuming no salvage value of any material produced given the fact that such costs are included in the cost estimate of the Lawrence Livermore National Laboratory (LLNL) report. Additionally, revise or justify the cost estimate to account for potential disposal costs for any materials that cannot be sold.

Under 10 CFR 70.25, an applicant for a uranium enrichment facility is required to prepare a decommissioning funding plan. The decommissioning funding plan includes a site-specific cost estimate for decommissioning and a financial assurance mechanism ensuring that funds will be available to decommission the facility.

In section 10.1.3.2 of the Safety Analysis Report (SAR) states that, "Credit is not taken for any salvage value that might be realized from the sale of potential assets (e.g., recovered material or decontaminated equipment) during or after decommissioning." However, in the LLNL report referenced, which provides one of the cost estimates for conversion, the DUF_6 conversion cost includes revenues generated from selling a byproduct of the conversion process, anhydrous hydrogen fluoride (AHF). Once these revenues are removed, the LLNL cost of conversion increases by approximately $0.95/kgU. After adjusting for this cost difference, the LLNL total cost estimate becomes approximately $6.00/kgU. This estimate is higher that the $5.50 estimate used by LES to calculate the cost of tails disposition.

Further, the LLNL report acknowledges that if the calcium fluoride (CaF_2) and AHF cannot be sold, which the authors describe as an unlikely scenario, then the byproducts will need to be disposed of as low-level radioactive waste (LLW), because the CaF_2 contains a small amount of uranium. This process would present significant costs which are not accounted for in the SAR.

LES Response

The response to this request will be forthcoming.

3. **Section 10.3, pp. 10.3-1 through 10.3-3**

Revise the cost estimates for depleted uranium conversion to include appropriate transportation costs applicable to the actual distances from the Eunice site to the proposed processing sites, or provide additional justification why the increased distance would not cause a substantial increase in cost.

Under 10 CFR 70.25, an applicant for a uranium enrichment facility is required to prepare a decommissioning funding plan. The decommissioning funding plan includes a site-specific cost estimate for decommissioning and a financial assurance mechanism ensuring that funds will be available to decommission the facility.

With regard to the transport costs, the LLNL study assumes a transport distance of 1,000 kilometers. However, the proposed facility may be substantially farther than 1,000 kilometers from conversion and disposal facilities. Specifically, the proposed facility may be:

a. 1,636 kilometers from a disposal site in South Clive, Utah;
b. 1,670 kilometers from a proposed conversion site in Paducah, Kentucky; and
c. 2,243 kilometers from a proposed conversion site in Portsmouth Ohio.

While the LLNL report states that transportation costs are not sensitive to distance traveled, this conclusion was based on a determination that loading, shipping, and unloading costs make up less than 25 percent of those costs. Absent any explanation of what comprises the remaining 75 percent of the costs, it is not obvious that the shipping costs will not be substantial.

LES Response

The response to this request will be forthcoming.

4. **Section 10.1.3.2, p. 10.1-2 and Section 10.3, pp. 10.3-1 through 10.3-3**

Revise the cost estimates to include costs applicable to use of a third-party contractor for performing the decommissioning operations or provide justification for not including such costs.

Under 10 CFR 70.25, an applicant for a uranium enrichment facility is required to prepare a decommissioning funding plan. The decommissioning funding plan includes a site-specific cost estimate for decommissioning and a financial assurance mechanism ensuring that funds will be available to decommission the facility.

In Section 10.1.3.2, LES indicates that it intends to serve as the Decommissioning Operations Contractor, rather than hiring a third party to conduct decommissioning activities. Although LES asserts that it will secure contract services as necessary, LES will have direct control and oversight of all decommissioning activities. This assumption may underestimate the cost of decommissioning the proposed facility. It appears that contractual services for a third-party decommissioning agent are not accounted for in the cost estimate. Such third-party costs should be accounted for in the Decommissioning Cost Estimate (NUREG-1757, Volume 3, pages 4-1 and A-26) in the event that LES is unable to perform the decommissioning and a third-party contractor is needed to complete the work.

LES Response

The cost estimate has been revised, in attached SAR Table 10.1-14, "Total Decommissioning Costs," to account for use of a third party for performing decommissioning operations associated with (1) planning and preparation, (2) decontamination and dismantling of radioactive facility components, (3) restoration of contaminated grounds, and (4) final radiation survey. An adjustment is applied to the total of the costs of these four activities. The adjustment accounts for an overhead rate on direct staff labor of 110%, plus 15% profit on labor and overheads and is consistent with the guidance provided in Appendix A of NUREG/CR-6477, "Revised Analyses of Decommissioning Reference Non-Fuel-Cycle Facilities," dated December 2002. This adjustment, included in the attached revised SAR Table 10.1-14, results in an additional cost of $41,061,000 (excluding contingency) to be applied to the decommissioning cost estimate. This additional cost is also considered to be reasonable since Urenco proprietary decommissioning methods would be available to third party contractors through the use of non-disclosure agreements. In addition, this additional cost is considered to adequately cover the costs of obtaining any needed security clearances for third party contractor personnel since the costs associated this activity are minimal. The attached revised SAR pages will be formally incorporated into SAR Chapter 10, "Decommissioning," in a future revision.

5. **Section 10.3, p. 10.3-3**

Provide a contingency factor of 25 percent for tails disposition.

Under 10 CFR 70.25, an applicant for a uranium enrichment facility is required to prepare a decommissioning funding plan. The decommissioning funding plan includes a site-specific cost estimate for decommissioning and a financial assurance mechanism ensuring that funds will be available to decommission the facility.

LES is applying a 25 percent contingency factor to all decommissioning costs except those associated with tails disposition. LES explains that the 25 percent contingency factor was not applied to the costs associated with tails disposition because tails disposition contingency costs are built into the LLNL cost estimate which provides for a 20 percent contingency factor for conversion plant process and manufacturing facility and balance of plant capital costs and a 30 percent contingency factor for process and manufacturing equipment. In addition, LES points to the margin between the value LES is proposing and the most recent U.S. Department of Energy/Uranium Disposition Services (DOE/UDS) estimates.

The contingency factors cited by LES are applied to the LLNL capital costs (associated with buildings and some equipment). There are no contingencies applied to the technical development, regulatory compliance, operations and maintenance transportation, or preparation and disposal costs, which account for a substantial portion of the overall costs. A contingency factor should apply to all of these types of costs.

LES Response

The response to this request will be forthcoming.

6. **Section 10.3, General**

Update the costs estimates from 2002 costs to 2004 costs.

Under 10 CFR 70.25, an applicant for a uranium enrichment facility is required to prepare a decommissioning funding plan. The decommissioning funding plan includes a site-specific cost estimate for decommissioning and a financial assurance mechanism ensuring that funds will be available to decommission the facility.

LES based in costs for decommissioning and waste disposition on 2002 costs. These costs should be updated to account for escalation, current foreign currency conversion rates, etc., as appropriate to reflect current costs.

LES Response

The decommissioning cost estimate, provided in the attached SAR Table 10.1-14, "Total Decommissioning Costs," has been adjusted from 2002 costs to 2004 costs based on the U.S. Gross Domestic Product (GDP) implicit price deflator. For January 2002 to January 2003, the GDP implicit price deflator was a 1.3% increase and, for January 2003 to January 2004, the GDP implicit price deflator was a 1.6% increase. The resulting factor used for escalating costs from January 2002 to January 2004 is a 2.08% increase, or approximately a 2.1% increase.

The attached revised SAR pages will be formally incorporated into SAR Chapter 10, "Decommissioning," in a future revision.

Updating the decommissioning cost estimate using the current foreign currency conversion rates is not necessary as the applicable foreign currency conversion has already been applied to the NEF decommissioning cost estimate presented in SAR Chapter 10. The Euro to U.S. dollar exchange rate, that was valid at the time the decommissioning cost estimate was developed (i.e., 1 Euro = 1 U.S. Dollar), was applied at that time so that the decommissioning cost estimate could be presented in terms of U.S. dollars in SAR Chapter 10. Follow-on analysis of the cost estimates was performed in U.S. dollars.

7. Table 10.1-4

Provide justification for the unit costs for earthen cover removal and disposal.

Under 10 CFR 70.25, an applicant for a uranium enrichment facility is required to prepare a decommissioning funding plan. The decommissioning funding plan includes a site-specific cost estimate for decommissioning and a financial assurance mechanism ensuring that funds will be available to decommission the facility.

Table 10.1-4 indicates that 33,000 ft^3 of the earthen cover will be removed and disposed. Table 10.1-14 indicates the total cost of this activity is $1 million. The resulting unit cost of removal and disposal appears to be $30.30/$ft^3$. However, in Table 10.1-10 (packaging, shipping, and disposal of radioactive wastes, the unit cost for packaging, shipping, and disposal of other wastes ranges from $100/$ft^3$ to $150/$ft^3$. Additional justification for each of these unit costs is needed to explain the apparent discrepancy.

LES Response

The cost of earthen cover removal and disposal of the Treated Effluent Evaporative Basin material has been maintained as an activity-based cost estimate. However, in response to RAI 7, this cost has been re-evaluated and revised consistent with the enclosure contained in STP-04-003, "NRC Letter to All Agreement States, NRC Process to Identify Decommissioning Sites with Inadequate Funding for remediation," dated January 16, 2004. STP-04-003 provides the "Financial Analysis Methodology" used by NRC for estimating site-specific unrestricted release decommissioning costs, including costs for excavation of contaminated areas.

The cost of earthen cover removal and disposal of the Treated Effluent Evaporative Basin material (33,000 ft^3) is based on a $30/$ft^3$ disposal cost. This cost of disposal is based on a recent actual disposal cost charged by Envirocare for disposal of slightly contaminated soil and was used for estimating purposes. This disposal cost is conservative in consideration of the cost information provided in STP-04-003. STP-04-003 states "NRC confirmed that ~$11/$ft^3$ is an average low-level waste disposal rate at Envirocare and that a range of $5-$17/ft^3 (as modeled in the sensitivity analysis) adequately describes the anticipated low-level waste disposal costs." Consistent with the estimating methodology described in STP-04-003, the cost of removal of the Treated Effluent Evaporative Basin materials has been re-evaluated and increased to account for the cost of excavation ($5.00/$yd^3$ which includes labor and equipment costs) and transportation costs ($4.00/mile for approximately 1100 miles from the NEF site to the Envirocare facility in Utah). The revised estimate for the total cost of removal of the settling basin is $1,357,000 (in 2002 U.S dollars). The attached SAR Table 10.1-4, "Restoration of Contamination Areas on Facility Grounds," and Table 10.1-14, "Total Decommissioning Costs," are revised accordingly and will be formally incorporated into SAR Chapter 10, "Decommissioning," in a future revision.

8. **Table 10.1-12**

Provide additional supporting detail for the sampling costs.

Under 10 CFR 70.25, an applicant for a uranium enrichment facility is required to prepare a decommissioning funding plan. The decommissioning funding plan includes a site-specific cost estimate for decommissioning and a financial assurance mechanism ensuring that funds will be available to decommission the facility.

The sampling costs included in Table 10.1-12 indicates 931 samples will be analyzed at a unit cost of $934 each. No supporting detail was provided to explain how that number of samples was derived or what the unit cost includes (e.g., Does it include the sample collection equipment, transport of samples to the lab, and analysis?). Additional supporting detail should be provided.

LES Response

The sampling costs included in Table 10.1-12, "Laboratory Costs," are associated with the processing of the aluminum metal for disposal. The sampling costs are associated the smelting option and the sampling necessary for comparison with radiological acceptance limits in the disposition of the material waste form. The unit cost for the sampling is the cost of performing the analysis using onsite laboratory equipment and assumes 8 samples for each of the estimated 931 batch melts.

For sampling costs associated with the final radiation survey, comprehensive experience, from essentially identical gas centrifuge uranium enrichment plants in Europe, shows that no ground contamination is expected from the operations at the NEF. During the operation of the NEF, a comprehensive environmental monitoring program will be implemented and the output of this program will be used to provide input data during decommissioning. In addition, during the operation of the NEF, any spills are cleaned up and documented leaving a clean facility at the end of operations. Prior to starting the decommissioning and immediately following the completion of operations, a comprehensive radiological characterization of the facility is performed. As a result, the costs of the sampling and analysis program for final radiation survey have been estimated based on the Urenco experience that site contamination is not expected.

The sampling program for the final radiation survey will be based on a 100 yard by 100 yard grid pattern of the NEF site, i.e., approximately 18 by 18 = 324 samples. Further, 176 additional samples will be obtained from the retention basins, particularly in the area of the Treated Effluent Evaporative Basin and the associated pipe to the basin from the Liquid Effluent Collection and Treatment System. It should be noted that the pipe is to be removed during decommissioning. Therefore, it is estimated that 500 samples will be taken and analyzed for the final radiation survey. The analysis of the samples will be provided by a third party

contractor since, at the time of performance of the final radiation survey, no analysis facilities will be available on site.

The $1.4 million cost assigned to "Collect Survey Readings and Analyze Data" in SAR Table 10.1-5, "Final Radiation Survey," includes a cost of $365,000 to conduct the sampling and perform the sample analysis by a contractor. The sampling labor cost component ($45,000) was estimated assuming $60/hr (i.e., the HP&S man-hour rate) for an estimated 500 samples with an average sample duration of 1.5 hours/sample. The analysis cost component ($320,000) for the 500 samples was estimated using a conservative $640/sample based on recent actual 2004 third party contractor laboratory analysis costs. The attached SAR Table 10.1-5 is revised to reflect this additional detail.

The attached revised SAR page will be formally incorporated into SAR Chapter 10, "Decommissioning," in a future revision.

9. **Section 10.2, pp. 10.2-1 and 10.2-2**

Provide an unexecuted copy of the surety bond and standby trust, with all applicable attachments and schedules.

Under 10 CFR 70.25, a decommissioning fund plan must contain a decommissioning financial assurance mechanism.

In the response to U.S. Nuclear Regulatory Commission Requests for Additional Information (RAIs), LES provided sample language for a surety bond. The unexecuted copy of the surety bond is consistent with the recommended wording in NUREG-1757, Volume 3, Appendix A. However, it does not appear that this language was incorporated into Revision 2 of the SAR. In addition, LES did not submit an unexecuted copy of a proposed standby trust agreement or an unexecuted copy of the broker/agent's power of attorney, as recommended by NUREG-1757, Volume 3, pages 4-24 and A-90. The submitted unexecuted surety bond requires that funds paid under the bond must be deposited into a standby trust fund, but the licensee's submission does not include an unexecuted standby trust agreement. Therefore, funds cannot be withdrawn under the payment surety bond until a standby trust has been established. This delay may prevent decommissioning from taking place in a timely manner. Moreover, if it is not possible to establish a trust fund at the time the bond is drawn upon (e.g., if the licensee no longer exists), funds drawn from the bond may be unavailable to pay for decommissioning activities. Therefore, LES should submit an unexecuted copy of the standby trust agreement and related documents, as recommended in NUREG-1757, Volume 3, pages 4-24 and A-90.

LES Response

Unexecuted copies of the surety bond and standby trust agreement, with applicable attachments and schedules, are provided in the attached revised pages for SAR. Information left blank on these pages and the copy of the broker/agent's power of attorney authorizing the broker/agent to issue bonds are not available at this time and will be provided to the NRC prior to LES receipt of licensed material. The attached revised SAR pages will be formally incorporated into SAR Chapter 10, "Decommissioning," in a future revision.

ATTACHMENT 2

Updated License Application Pages

TABLE OF CONTENTS

10.2 FINANCIAL ASSURANCE MECHANISM

10.2.1 Decommissioning Funding Mechanism

LES intends to utilize a surety method to provide reasonable assurance of decommissioning funding as required by 10 CFR 40.36(e)(2) (CFR, 2003h) and 70.25(f)(2) (CFR, 2003i). Finalization of the specific financial instruments to be utilized will be completed, and signed originals of those instruments will be provided to the NRC, prior to LES receipt of licensed material. LES intends to provide continuous financial assurance from the time of receipt of licensed material to the completion of decommissioning and termination of the license. Since LES intends to sequentially install and operate the Separations Building Modules over time, financial assurance for decommissioning will be provided during the operating life of the NEF at a rate that is in proportion to the decommissioning liability for these facilities as they are phased in. Similarly, LES will provide decommissioning funding assurance for disposition of depleted tails at a rate in proportion to the amount of accumulated tails onsite up to the maximum amount of the tails as described in Section 10.3, Tails Disposition.

The surety method adopted by LES will provide an ultimate guarantee that decommissioning costs will be paid in the event LES is unable to meet its decommissioning obligations at the time of decommissioning. The surety method will also be structured and adopted consistent with applicable NRC regulatory requirements and in accordance with NRC regulatory guidance contained in NUREG-1757 (NRC, 2003). Accordingly, LES intends that its surety method will contain, but not be limited to, the following attributes:

- The surety method will be open-ended or, if written for a specified term, such as five years, will be renewed automatically unless 90 days or more prior to the renewal date, the issuer notifies the NRC, the trust to which the surety is payable, and LES of its intention not to renew. The surety method will also provide that the full face amount be paid to the beneficiary automatically prior to the expiration without proof of forfeiture if LES fails to provide a replacement acceptable to the NRC within 30 days after receipt of notification of cancellation.

- The surety method will be payable to a trust established for decommissioning costs. The trustee and trust will be ones acceptable to the NRC. For instance, the trustee may be an appropriate State or Federal government agency or an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency.

- The surety method will remain in effect until the NRC has terminated the license.

- Unexecuted copies of the surety method documentation are provided in Appendices 10A through 10F. Prior to LES receipt of licensed material, the applicable unexecuted copies of the surety method documentation will be replaced with the finalized, signed, and executed surety method documentation, including a copy of the broker/agent's power of attorney authorizing the broker/agent to issue bonds.

10.2.2 Adjusting Decommissioning Costs and Funding

In accordance with 10 CFR 40.36(d) (CFR, 2003h) and 70.25(e) (CFR, 2003i), LES will update the decommissioning cost estimate for the NEF, and the associated funding levels, over the life of the facility. These updates will take into account changes resulting from inflation or site-specific factors, such as changes in facility conditions or expected decommissioning procedures. These funding level updates will also address anticipated operation of additional Separations Building Modules and accumulated tails.

As required by the applicable regulations 10 CFR 70.25(e) (CFR, 2003i), such updating will occur approximately every three years. A record of the update process and results will be retained for review as discussed in Section 10.2.3, below. The NRC will be notified of any material changes to the decommissioning cost estimate and associated funding levels (e.g., significant increases in costs beyond anticipated inflation). To the extent the underlying instruments are revised to reflect changes in funding levels, the NRC will be notified as appropriate.

10.2.3 Recordkeeping Plans Related to Decommissioning Funding

In accordance with 10 CFR 40.36(f) (CFR, 2003h) and 70.25(g) (CFR, 2003i), LES will retain records, until the termination of the license, of information that could have a material effect on the ultimate costs of decommissioning. These records will include information regarding: (1) spills or other contamination that cause contaminants to remain following cleanup efforts; (2) as-built drawings of structures and equipment, and modifications thereto, where radioactive contamination exists (e.g., from the use or storage of such materials); (3) original and modified cost estimates of decommissioning; and (4) original and modified decommissioning funding instruments and supporting documentation.

Table 10.1-2 Planning and Preparation
Page 1 of 1

Activity	Costs ($000)	Labor Shift-worker (multi-functional) (Man-days)	Labor Project Management (Man-days)	Labor HP&S (Man-days)	Activity Duration (Months)
Project Plan & Schedule	100	0	178	0	4
Site Characterization Plan	200	0	356	0	4
Site Characterization	300	82	368	144	4
Decommissioning Plan	350	0	622	0	6
NRC Review Period	50	0	89	0	12
Site Services Specifications	100	0	178	0	2
Project Procedures	100	0	178	0	4
TOTAL	1,200	82	1,969	144	(Note 1)

Note:

1. Some activities will be conducted in parallel to achieve a 24 month time frame.

Table 10.1-3 Decontamination or Dismantling of Radioactive Components (Man-Hours)
Page 1 of 1

Other Buildings (Note 1)

Component	Decon Method (Note 4)	Craftsman	Supervision (Note 2)	Project Management	HP&S/Chem (Note 3)
Glove Boxes		0	0	0	0
Fume Cupboards		312	62	53	66
Lab Benches		324	64	55	68
Sinks		101	20	17	21
Drains		102	20	17	21
Floors		647	129	111	136
Walls		422	84	72	89
Ceilings		275	55	47	58
Ventilation/Ductwork		8,468	1,693	1,447	1,780
Hot Cells		0	0	0	0
Equipment/Materials		1,533	307	262	322
Soil Plots		0	0	0	0
Storage Tanks		14	3	2	3
Storage Areas		110	22	19	23
Radwaste Areas		0	0	0	0
Scrap Recovery Areas		0	0	0	0
Maintenance Shop		0	0	0	0
Equipment Decontamination Areas		0	0	0	0
Other		1,913	382	327	402
TOTAL Hours	--	14,221	2,841	2,430	2,990

Notes:

1. Includes the Decontamination Facility, Technical Services Building, Gaseous Effluent Vent System Throughout Plant, Blending and Sampling, and Centrifuge Test and Post Mortem Facilities.
2. Supervision at 20%.
3. Supply ongoing monitoring and analysis service for dismantling teams.
4. Specific details of decontamination method not defined at this time.

Table 10.1-4 Restoration of Contaminated Areas on Facility Grounds
(Work Days)
Page 1 of 1

Activity	Labor Category	Labor Category	Labor Category	Labor Category	Labor Category	Labor Category
Backfill and Restore Site (Note 1)						
TOTAL						

Note:

1. Deviates from NUREG-1757 because cost is based on volume and unit cost associated with removal and disposal of liners and earthen covers of the facility Treated Effluent Evaporative Basin. The cost (see Table 10.1-14) assumes transport and disposal of approximately 33,000 ft^3 of contaminated soil and basin membrane. The cost of removal of the facility Treated Effluent Evaporative Basin material (33,000 ft^3) is based on a \$30/ft^3 disposal cost and includes the cost of excavation (\$5.00/yd^3 which includes labor and equipment costs) and cost of transportation (\$4.00/mile for approximately 1,100 miles from the NEF site to the Envirocare facility in Utah). Based on Urenco experience, other areas outside of the plant buildings are not expected to be contaminated.

Table 10.1-5 Final Radiation Survey
Page 1 of 1

Activity	Costs ($000)	Labor Shift-worker (multi-functional) (Man-days)	Labor Project Management (Man-days)	Labor HP&S (Man-days)	Activity Duration (Months)
Prepare Survey Plans and Grid Areas	500	439	334	360	8
Collect Survey Readings and Analyze Data	1,400 (Note 1)	1,261	911	1,013	16
Final Status Survey Report and NRC Review	300	0	533	0	8
Confirmatory Survey and Report	200	0	355	0	6
Terminate Site License	100	0	178	0	2
TOTAL	2,500	1,700	2,311	1,373	(Note 2)

Notes:

1. The $1.4 million cost assigned to the conduct of the final radiation survey includes a cost of $365,000 to conduct the sampling and perform the sample analysis by a contractor. The sampling labor cost component ($45,000) was estimated assuming $60/hr (HP&S man-hour rate) for an estimated 500 samples with an average sample duration of 1.5 hours/sample. The analysis cost component ($320,000) for the 500 samples was estimated using a conservative $640/sample based on recent actual 2004 lab analysis costs.
2. Some activities will be conducted in parallel to achieve a 36 month time frame.

Table 10.1-6 Site Stabilization and Long-Term Surveillance
(Work Days)
Page 1 of 1

Activity	Labor Category	Labor Category	Labor Category	Labor Category	Labor Category	Labor Category
(Note 1)	N/A	N/A	N/A	N/A	N/A	N/A

Note:

1. Urenco experience with decommissioning gas centrifuge uranium enrichment plants has been that there is no resultant ground contamination. As a result, site stabilization and long-term surveillance will not be required and associated decommissioning provisions are not provided.

Table 10.1-7 Total Work Days by Labor Category
(Based on a 7.5 hr Working Day)
Page 1 of 1

Task	Shift- worker (multi-functional)	Craftsman	Supervision	Project Management	HP&S	Cleaner
Planning and Preparation (see Table 10.1-2)	82	0	0	1,969	144	0
Decontamination and/or Dismantling of Radioactive Facility Components	56,067	1,896	6,156	1,478	1,828	2,897
Restoration of Contaminated Areas on Facility Grounds (Note 1) (see Table 10.1-4)	-	-	-	-	-	-
Final Radiation Survey (see Table 10.1-5)	1,700	0	0	2,311	1,373	0
Site Stabilization and Long-Term Surveillance (see Table 10.1-6)	0	0	0	0	0	0

Note:

1. Cost estimate is activity-based.

Table 10.1-9 Total Labor Costs by Major Decommissioning Task
($000)
Page 1 of 1

Task	Shift-worker (multi-functional)	Craftsman	Supervision	Project Management	HP&S	Cleaner
Planning and Preparation (see Table 10.1-2)	28	0	0	1,109	65	0
Decontamination and/or Dismantling of Radioactive Facility Components	19,175	579	2,770	832	823	991
Restoration of Contaminated Areas on Facility Grounds (Note 1) (see Table 10.1-4)	-	-	-	-	-	-
Final Radiation Survey (see Table 10.1-5)	581	0	0	1,301	618	0
Site Stabilization and Long-Term Surveillance (see Table 10.1-6)	0	0	0	0	0	0

Note:

1. Cost estimate is activity-based.

Table 10.1-12 Laboratory Costs
Page 1 of 1

Activity	Quantity	Unit Cost ($)	Total Costs ($000)
Analysis of batch samples (Note 1)	931	934	870
TOTAL	--	--	870

Note:

1. Sample analysis costs are for aluminum only. The unit cost for this sampling is the cost of performing the analysis using onsite laboratory equipment and assumes 8 samples for each of the estimated 931 batch melts. Costs associated with other sampling and analysis are included in Table 10.1-5, Final Radiation Survey.

Table 10.1-14 Total Decommissioning Costs
Page 1 of 2

(Note 7)

Task/Components	Costs ($000)		Total ($000)	Percentage	Notes
	Separations Modules	Other Buildings			
Planning and Preparation (see Table 10.1-2)	1,200	0	1,200	1%	1
Decontamination and Dismantling of Radioactive Facility Components (see Table 10.1-9)	24,060	1,110	25,170	20%	8
Restoration of Contamination Areas on Facility Grounds (see Table 10.1-4)	1,357	0	1,357	1%	2
Final Radiation Survey (see Table 10.1-5)	2,500	0	2,500	2%	3
Cost of Third Party Use	39,829	1,232	41,061	32%	11
Site Stabilization and Long-term Surveillance	0	0	0	0%	4
Waste Processing Costs (see Table 10.1-10)	3,690	0	3,690	3%	5
Waste Disposal Costs (see Table 10.1-10)	17,904	440	18,344	14%	6
Equipment Costs (see Table 10.1-11)	21,260	100	21,360	17%	--
Supply Costs (see Table 10.1-11)	910	0	910	1%	--
Laboratory Costs (see Table 10.1-12)	870	0	870	1%	--
Period Dependent Costs (see Table 10.1-13)	10,000	0	10,000	8%	--
SUBTOTAL (2002)	123,580	2,882	126,462		--
SUBTOTAL (with escalation to 2004)	126,175	2,943	129,118		12
Tails Disposition (2004)	--	--	To be provided		9
Contingency (25%)	--	--	To be provided		--
TOTAL (2004)	--	--	To be provided		10

Notes:

1. The $1,200 includes planning, site characterization, Decommissioning Plan preparation, and NRC review for the entire plant.
2. Cost provided is for removal and disposal of liners and earthen covers of the facility Treated Effluent Evaporative Basin. The cost assumes transport and disposal of approximately 33,000 ft^3 of contaminated soil and basin membrane at recent commercial rates. The cost of removal of the facility Treated Effluent Evaporative Basin material (33,000 ft^3) is based on a $30/$ft^3$ disposal cost and includes the cost of excavation ($5.00/$yd^3$ which includes labor and equipment costs) and cost of transportation ($4.00/mile for approximately 1,100 miles from the NEF site to the Envirocare facility in Utah). Other areas outside of the plant buildings are not expected to be contaminated.
3. The $2,500 includes the Final Radiation Survey, NRC review, confirmatory surveys and license termination for the entire plant.
4. Site stabilization and long-term surveillance will not be required.
5. Waste processing costs are based on commercial metal melting equipment and unit rates obtained from Urenco experience in Europe.
6. Includes waste packaging and shipping costs. Waste disposal costs for Other Buildings are based on a $150 per cubic foot unit rate which includes packaging, shipping and disposal at Envirocare in Utah.
7. More than 97% of the decommissioning costs for the facility are attributed to the dismantling, decontamination, processing, and disposal of centrifuges and other equipment in the Separations Building Modules, which are considered classified. Given the classified nature of these buildings, the data presented in these Tables have been structured to meet the applicable NUREG-1757 recommendations, to the extent practicable. However, specific information such as numbers of components and unit rates has been intentionally excluded to protect the classified nature of the data. The remaining 3% of the decommissioning costs are for the remaining systems and components in Other Buildings.
8. The $1,110 for Other Buildings includes the decontamination and dismantling of contaminated equipment in the TBS, Blending and Liquid Sampling Area, Centrifuge Test and Post Mortem Facilities, and Gaseous Effluent Vent System.
9. Refer to Section 10.3, for Tails Disposition discussion.
10. Combined total for both decommissioning and tails disposition.
11. An adjustment has been applied to account for use of a third party for performing decommissioning operations associated with planning and preparation, decontamination and dismantling of radioactive facility components, restoration of contaminated grounds, and the final radiation survey. The adjustment includes an overhead rate on direct staff labor of 110%, plus 15% profit on labor and its overheads.
12. The escalation cost factor applied is based on the Gross Domestic Product (GDP) implicit price deflator. For January 2002 to January 2003, the GDP implicit price deflator was a 1.3% increase and, for January 2003 to January 2004, the GDP implicit price deflator was a 1.6% increase. The resulting escalation cost factor for January 2002 to January 2004 is a 2.08% increase, or approximately a 2.1% increase. The escalation cost factor is not applied to the tails disposition costs since these costs are provided in 2004 dollars.

APPENDIX 10A

PAYMENT SURETY BOND

Date bond executed: _____

Effective date: _____

Principal: Louisiana Energy Services, L.P.
100 Sun Avenue NE, Suite 204
Albuquerque, NM 87109

Type of organization: Limited Partnership

State of incorporation: Delaware

NRC license number, name and address of facility, and amount for decommissioning activities guaranteed by this bond: _____

Surety: [*Insert name and business address*]

Type of organization: [*Insert "proprietorship," "partnership," or "corporation"*]

State of incorporation: _____ *(if applicable)*

Surety's qualification in jurisdiction where licensed facility is located.

Surety's bond number: _____

Total penal sum of bond: $_____

Know all persons by these presents, that we, the Principal and Surety hereto, are firmly bound to the U.S. Nuclear Regulatory Commission (hereinafter called NRC) in the above penal sum for the payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally; provided that, where the Sureties are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sum "jointly and severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum

only as is set forth opposite the name of such Surety; but if no limit of liability is indicated, the limit of liability shall be the full amount of the penal sum.

WHEREAS, the NRC, an agency of the U.S. Government, pursuant to the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, has promulgated regulations in title 10, Chapter I of the *Code of Federal Regulations*, Parts 30, 40, and 70, applicable to the Principal, which require that a license holder or an applicant for a facility license provide financial assurance that funds will be available when needed for facility decommissioning;

NOW, THEREFORE, the conditions of the obligation are such that if the Principal shall faithfully, before the beginning of decommissioning of each facility identified above, fund the standby trust fund in the amount(s) identified above for the facility;

Or, if the Principal shall fund the standby trust fund in such amount(s) after an order to begin facility decommissioning is issued by NRC or a U.S. District Court or other court of competent jurisdiction;

Or, if the Principal shall provide alternative financial assurance, and obtain NRC's written approval of such assurance, within 30 days after the date a notice of cancellation from the Surety is received by both the Principal and NRC, then this obligation shall be null and void; otherwise it is to remain in full force and effect.

The Surety shall become liable on this bond obligation only when the Principal has failed to fulfill the conditions described above. Upon notification by NRC that the Principal has failed to perform as guaranteed by this bond, the Surety shall place funds in the amount guaranteed for the facility into the standby trust fund.

The liability of the Surety shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond, but in no event shall the obligation of the Surety hereunder exceed the amount of said penal sum.

The Surety may cancel the bond by sending notice of cancellation by certified mail to the Principal and to NRC provided, however, that cancellation shall not occur during the 90 days beginning on the date of receipt of the notice of cancellation by both the Principal and NRC, as evidenced by the return receipts.

The Principal may terminate this bond by sending written notice to NRC and to the Surety 90 days prior to the proposed date of termination, provided, however, that no such notice shall become effective until the Surety receives written authorization for termination of the bond from NRC.

The Principal and Surety hereby agree to adjust the penal sum of the bond yearly so that it guarantees a new amount, provided that the penal sum does not increase by more than 20 percent in any one year and no decrease in the penal sum takes place without the written permission of NRC.

If any part of this agreement is invalid, it shall not affect the remaining provisions that will remain valid and enforceable.

In Witness Whereof, the Principal and Surety have executed this financial guarantee bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety.

Principal

[*Signatures*]
E. James Ferland
President, Louisiana Energy Services, L.P.
[*Corporate seal*]

Corporate Surety

[*Name and address*]

State of incorporation: _____

Liability limit: $_____

[*Signatures*]
[*Names and titles*]
[*Corporate seal*]

Bond Premium: $_____

APPENDIX 10B

STANDBY TRUST AGREEMENT

TRUST AGREEMENT, the Agreement entered into as of [*insert date*] by and between Louisiana Energy Service, L. P., a Delaware limited partnership, herein referred to as the "Grantor," and [*insert name and address of a trustee acceptable to NRC*], the "Trustee."

WHEREAS, the U.S. Nuclear Regulatory Commission (NRC), an agency of the U.S.

Government, pursuant to the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, has promulgated regulations in title 10, Chapter I, of the *Code of Federal Regulations*, Parts 30, 40, and 70. These regulations, applicable to the Grantor, require that a holder of, or an applicant for, a materials license issued pursuant to 10 CFR Parts 30, 40, and 70 provide assurance that funds will be available when needed for required decommissioning activities.

WHEREAS, the Grantor has elected to use a surety bond to provide all of such financial assurance for the facilities identified herein; and

WHEREAS, when payment is made under a surety bond, this standby trust shall be used for the receipt of such payment; and

WHEREAS, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this Agreement, and the Trustee is willing to act as trustee;

NOW, THEREFORE, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a)The term "Grantor" means the NRC licensee who enters into this Agreement and any successors or assigns of the Grantor.

(b) The term "Trustee" means the trustee who enters into this Agreement and any successor trustee.

Section 2. Costs of Decommissioning. This Agreement pertains to the costs of decommissioning the materials and activities identified in License Number [*insert license number*] issued pursuant to 10 CFR Parts 30, 40, and 70, as shown in Schedule A.

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a standby trust fund (the Fund) for the benefit of NRC. The Grantor and the Trustee intend that no third party shall have access to the Fund except as provided herein.

Section 4. Payments Constituting the Fund. Payments made to the Trustee for the Fund shall consist of cash, securities, or other liquid assets acceptable to the Trustee. The Fund is established initially as consisting of the property, which is acceptable to the Trustee , described

in Schedule B attached hereto. Such property and any other property subsequently transferred to the Trustee are referred to as the "Fund," together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount of, or adequacy of the Fund, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by NRC.

Section 5. Payment for Required Activities Specified in the Plan. The Trustee shall make payments from the Fund to the Grantor upon presentation to the Trustee of the following:

(a) A certificate duly executed by the Secretary of the Grantor's Management Committee attesting to the occurrence of the events, and in the form set forth in the attached Certificate of Events, and

(b) A certificate attesting to the following conditions:

(1) that decommissioning is proceeding pursuant to an NRC-approved plan;

(2) that the funds withdrawn will be expended for activities undertaken pursuant to that plan; and

(3) that NRC has been given 30 days prior notice of Louisiana Energy Service's intent to withdraw funds from the trust fund.

No withdrawal from the Fund for a particular license can exceed 10 percent of the remaining funds available for that license unless NRC written approval is attached.

In addition, the Trustee shall make payments from the Fund as NRC shall direct, in writing, to provide for the payment of the costs of required activities covered by this Agreement. The Trustee shall reimburse the Grantor or other persons as specified by NRC from the Fund for expenditures for required activities in such amounts as NRC shall direct in writing. In addition, the Trustee shall refund to the Grantor such amounts as NRC specifies in writing. Upon refund, such funds shall no longer constitute part of the Fund as defined herein.

Section 6. Trust Management. The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge its duties with respect to the Fund solely in the interest of the beneficiary and with the care, skill, prudence and diligence under the circumstances then prevailing which persons of

prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims, except that:

(a) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, as amended (15 U.S.C. 80a-2(a)), shall not be acquired or held, unless they are securities or other obligations of the Federal or a State government;

(b) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal government, and in obligations of the Federal government such as GNMA, FNMA, and FHLM bonds and certificates or State and Municipal bonds rated BBB or higher by Standard & Poor's or Baa or higher by Moody's Investment Services; and

(c) For a reasonable time, not to exceed 60 days, the Trustee is authorized to hold uninvested cash, awaiting investment or distribution, without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940 (15 U.S.C. 80a-1 et seq.), including one that may be created, managed, underwritten, or to which investment advice is rendered, or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustee. Without in any way limiting the powers and discretion conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale, as necessary to allow duly authorized withdrawals at the joint request of the Grantor and NRC or to reinvest in securities at the direction of the Grantor;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name, or in the name of a nominee, and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, to reinvest interest payments and funds from matured and redeemed instruments, to file proper forms concerning securities held in the Fund in a timely fashion with appropriate government agencies, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee

or such depository with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the U.S. Government, or any agency or instrumentality thereof, with a Federal Reserve Bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements of the Trustee shall be paid from the Fund.

Section 10. Annual Valuation. After payment has been made into this standby trust fund, the Trustee shall annually, at least 30 days before the anniversary date of receipt of payment into the standby trust fund, furnish to the Grantor and to NRC a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than 60 days before the anniversary date of the establishment of the Fund. The failure of the Grantor to object in writing to the Trustee within 90 days after the statement has been furnished to the Grantor and NRC shall constitute a conclusively binding assent by the Grantor, barring the Grantor from asserting any claim or liability against the Trustee with respect to the matters disclosed in the statement.

Section 11. Advice of Counsel. The Trustee may from time to time consult with counsel with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting on the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing with the Grantor. (See Schedule C.)

Section 13. Successor Trustee. Upon 90 days notice to NRC and the Grantor, the Trustee may resign; upon 90 days notice to NRC and the Trustee, the Grantor may replace the Trustee; but such resignation or replacement shall not be effective until the Grantor has appointed a successor Trustee, the successor accepts the appointment, the successor is ready to assume its duties as trustee, and NRC has agreed, in writing, that the successor is an appropriate Federal or State government agency or an entity that has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency. The successor Trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. When the resignation or replacement is effective, the Trustee shall assign, transfer, and pay over to the successor Trustee the funds and properties then constituting the Fund. If for

any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor Trustee or for instructions. The successor Trustee shall specify the date on which it assumes administration of the trust, in a writing sent to the Grantor, NRC, and the present Trustee, by certified mail 10 days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests, and instructions by the Grantor to the Trustee shall be in writing, signed by such persons as are signatories to this Agreement or such other designees as the Grantor may designate in writing. The Trustee shall be fully protected in acting without inquiry in accordance with the Grantor's orders, requests, and instructions. If NRC issues orders, requests, or instructions to the Trustee these shall be in writing, signed by NRC or its designees, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or NRC hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instructions from the Grantor and/or NRC, except as provided for herein.

Section 15. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee, and NRC, or by the Trustee and NRC if the Grantor ceases to exist. All amendments shall meet the relevant regulatory requirements of NRC.

Section 16. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 15, this trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and NRC, or by the Trustee and NRC if the Grantor ceases to exist. Upon termination of the trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor or its successor.

Section 17. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this trust, or in carrying out any directions by the Grantor or NRC issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or from the trust fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 18. This Agreement shall be administered, construed, and enforced according to the laws of the State of [*insert name of State*].

Section 19. Interpretation and Severability. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement. If any part of this Agreement is invalid, it shall not affect the remaining provisions which will remain valid and enforceable.

IN WITNESS WHEREOF the parties have caused this Agreement to be executed by the respective officers duly authorized and the incorporate seals to be hereunto affixed and attested as of the date first written above.

Louisiana Energy Services, L. P.
[*Signature of E. James Ferland*]
E. James Ferland
President, Louisiana Energy Services, L. P

ATTEST:
[*Title*]
[*Seal*]

[*Insert name and address of Trustee*]
[*Signature of representative of Trustee*]
[*Title*]

ATTEST:
[*Title*]
[*Seal*]

APPENDIX 10C

STANDBY TRUST AGREEMENT SCHEDULES

Schedule A

This Agreement demonstrates financial assurance for the following cost estimates or prescribed amounts for the following licensed activities:

U.S. NUCLEAR REGULATORY COMMISSION LICENSE NUMBER(S)	NAME AND ADDRESS OF LICENSEE	ADDRESS OF LICENSED ACTIVITY	COST ESTIMATES FOR REGULATORY ASSURANCES DEMONSTRATED BY THIS AGREEMENT
	Louisiana Energy Services, L.P. 100 Sun Avenue NE, Suite 204 Albuquerque, NM 87109		

The cost estimates listed here were last adjusted and approved by NRC on [*insert date*].

Schedule B

DOLLAR AMOUNT_____

AS EVIDENCED BY_____

Schedule C

[*Insert name, address, and phone number of Trustee.*]
Trustee's fees shall be $_____per year.

APPENDIX D
SPECIMEN CERTIFICATE OF EVENTS

[*Insert name and address of trustee*]

Attention: Trust Division

Gentlemen:

In accordance with the terms of the Agreement with you dated _____, I, _____, Secretary of the Management Committee of Louisiana Energy Services, L. P., hereby certify that the following events have occurred:

1. Louisiana Energy Services, L. P., is required to commence the decommissioning of its facility located in Lea County, New Mexico (hereinafter called the decommissioning).

2. The plans and procedures for the commencement and conduct of the decommissioning have been approved by the United States Nuclear Regulatory Commission, or its successor, on _____(copy of approval attached).

3. The Management Committee of Louisiana Energy Services, L. P., has adopted the attached resolution authorizing the commencement of the decommissioning.

_____
Secretary of the Management Committee of
Louisiana Energy Services, L. P.

_____
Date

APPENDIX 10E

SPECIMEN CERTIFICATE OF RESOLUTION

I, _____, do hereby certify that I am Secretary of the Management Committee of Louisiana Energy Services, L. P., a Delaware Limited Partnership, and that the resolution listed below was duly adopted at a meeting of this Limited Partnership's Management Committee on _____, 20__.

IN WITNESS WHEREOF, I have hereunto signed my name and affixed the seal of this Limited Partnership this ___ day of _____, 20__.

_____

Secretary of the Management Committee of
Louisiana Energy Services, L. P.

RESOLVED, that this Management Committee hereby authorizes the President, or such other employee of the Limited Partnership as he may designate, to commence decommissioning activities at the National Enrichment Facility in accordance with the terms and conditions described to this Management Committee at this meeting and with such other terms and conditions as the President shall approve with and upon the advice of Counsel.

APPENDIX 10F
LETTER OF ACKNOWLEDGMENT

STATE OF _____

To Wit: _____

CITY OF _____

On this ___ day of _____, before me, a notary public in and for the city and State aforesaid, personally appeared _____, and she/he did depose and say that she/he is the [*insert title*] of _____[*if applicable, insert ", national banking association" or ", State banking association"*], Trustee, which executed the above instrument; that she/he knows the seal of said association; that the seal affixed to such instrument is such corporate seal; that it was so affixed by order of the association; and that she/he signed her/his name thereto by like order.

_____
[*Signature of notary public*]

My Commission Expires: _____
[*Date*]